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# **GARDNER**

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# **NURSERY CO.**

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**CONDENSED**

## **CATALOGUE**

**AND**

## **PRICE LIST**

**SEASON**  
**1922-1923**

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Main Office  
**KENNEWICK, WASHINGTON**  
Phone 2102



# Gardner Nursery Co.

## Kennewick, Wash.

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### Condensed Catalogue and Price List

SEASON 1922-23

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### Introductory

In preparing this booklet we have endeavored to eliminate non-essentials and to place in the hands of the prospective grower or planter in a condensed form the information most generally desired in making new orchard plantings or increasing older ones, or beautifying the grounds and lawn. As we cater especially to Yakima Valley trade, we have emphasized those varieties most suited to this section, although most of them are suitable for the greater part of the Pacific Northwest. We wish especially to urge upon your consideration that we will gladly supply additional information desired, at any time, and will send our personal representative to confer with you, whenever desired, with reference to prospective plantings.

### PRICES

Prices quoted herein are for the current season, and are as low as good stock can be supplied at this time.

Please notice that the scale of prices is based on the quantity of stock desired, as cost of handling, etc., is less on large orders, and in any commercial planting it is advisable to write us, giving the approximate number of trees in which you are interested, together with sizes, varieties, etc., and we will either write you giving our estimate, or send a representative to confer with you.

We wish to impress upon you that the price of the nursery stock is one of a number of items in making up the total cost of the developed orchard, and is of small importance compared to the quality of the stock. We do not offer our stock as the cheapest but as of the very best, and fairly priced.

### TERMS

Ten per cent. of order in cash with order; balance at time of delivery. Orders under \$5.00, cash with order.

### GUARANTEE

We guarantee all stock true to name and label, and free from disease, and to reach the customer in good condition. Any stock that proves otherwise, we will replace or refund the purchase price paid. It is agreed between the purchaser and ourselves that no further recourse for damages may be had on us.

Mistakes, if they occur, must be reported promptly by the purchaser, and any stock not arriving in good condition should not be accepted by purchaser from transportation company without a notation on shipping receipt.

### SHIPPING CHARGES.

We pay freight, express or parcels post on all shipments in the state of Washington.

We find the parcels post very satisfactory for all small orders, as it takes the article to your door. Always give exact postoffice address when writing.

We give as reference the Security State Bank of Richland, Wash., and the Commercial Bank of Yakima, Wash.

### DISTANCES AND METHODS OF PLANTING.

It is impossible to give a hard and fast rule for distances for planting any tree. The methods of farming to be employed, soil, water, elevation, and other conditions of environment, and other reasons, must be considered. As a general rule, plant close for heavier quick returns, and farther apart for more permanent planting. The most common practice in the valley is 30 feet for apple and 20 feet for all other fruits. The number of plants required to the acre for each distance may be computed by multiplying the distance between rows by the distance in the row and dividing 43,560, the number of square feet in an acre, by the product.

A table given below shows the number required for many of the common distances.

Diagonal or hexagonal planting gives about one-seventh more trees per acre with the same distance between trees, but is not used as much as formerly because it does not permit as wide distances between rows for handling alfalfa and spray rigs.

Distance	Square	Hexagonal	Distance	Square	Hexagonal
8 ft.	680	785	24 ft.	75	87
10 ft.	435	500	25 ft.	70	80
12 ft.	302	349	26 ft.	64	74
14 ft.	222	255	28 ft.	56	64
16 ft.	170	196	30 ft.	48	55
18 ft.	135	154	32 ft.	43	49
20 ft.	109	124	36 ft.	34	39
22 ft.	90	103	40 ft.	27	31

NOTE—All of these figures are not exact for planting one acre, but are intended for the planting of a multiple of acres.

### LAYING OFF A FIELD FOR ORCHARD

There are nearly as many methods in vogue as there are planters, but for medium to large plantings where the field is not obstructed by older trees the following method is a favorite with us. Decide on a base line, which should be a fence, road or other straight line forming one side of the orchard. Measure off the distance from this line it is desired to place the first row, and mark same by a stake at each end, one of which should represent the corner tree of the new orchard. With a carefully made measuring pole of the correct length, lay off this first row, driving a stake for each tree. Cast off a right angle to start the first end row. Lay it and the other end row off in the same way, and then lay off the last row, the opposite side of the field from the base line. When the four corners are thus established, sight in all the intervening stakes in these four rows which thus bound the field, using care in moving a stake to keep it parallel to its former position, or measuring to correct small errors, if any. Ignore jutting triangular or other irregularities until main field is planted, when they can be easily filled in.

## PLANTING.

Stretch a new No. 14 wire without splices across the field at one end, draw it reasonably tight along the row of stakes. Fasten each end firmly to a stake driven in the ground just back of corner stake. With a small soldering outfit drop a small drop of the solder on the wire at each stake position, measuring the wire with the measuring pole for accuracy. You are now ready to begin planting trees, and the hole for each tree may be dug and the tree planted while the wire remains in position.

When the row is completed, move the wire one row and repeat, using the second side stake at each end to establish the two end positions for the second row. Use care to always set the tree on the same side of the wire. A little paint may be used in place of the solder if time is allowed for it to dry. Be sure that the roots of every tree are protected at all times by water or moist earth. Keep them heeled in until needed.

A small tract may best be staked off with a stake for each tree, measured off and sighted into line both ways, and a planting board used, which is a 3-foot piece of 1x4 lumber with a notch in each end and one at the middle of one side. The board is laid with the middle notch against the stake, staked at both ends and removed, and the hole dug, then the board replaced, when the two end stakes will regulate the position of the board so that the tree will come in the same place that was occupied by the stake.

## TRIM THE ROOTS AND TOP

At time of planting, cut every root of the tree, to clean new tissue, to stimulate new growth, and prune the top back to 20 to 30 inches high, shortening in any limbs that are present. The tree should be planted slightly deeper than it stood in the nursery, and the dirt solidly packed about the roots. In using water in planting, the best practice is to apply it after the hole is about half filled with dirt and then permit it to soak away before completing the filling. At the first irrigation it is important to run the water clear to the tree trunks, so as to fill any small air spaces left inadvertently, and afterwards cultivate or hoe well.

## VARIETIES TO PLANT.

As a general recommendation we suggest that in most cases it pays best to plant standard varieties, thus helping to solve your most important problem, that of marketing. While we can supply many varieties besides those listed, we do not as a rule recommend them in this latitude, except for family use in small numbers. Many of them do very well here, but a shorter list of sorts should be the aim of the commercial grower.

You will notice we do not feature so-called new and special sorts, at very special prices. We believe that if a variety is worth planting by the grower, it is worth propagating on a scale that will permit its sale at the same price with other sorts. Most of the so-called new varieties are either old varieties under a new name or else are new seedling sorts not yet fully proven.

## LANDSCAPING AND ORNAMENTAL PLANTS

We have made a careful study of the principles of landscape work in their application to this district and are prepared to make recommendations to fit your particular case upon receipt of inquiry with description. Most of our shrubs and flowers are varieties selected for their adaptability to conditions in this valley.

# FRUIT DEPARTMENT

The best commercial varieties are printed in black face type.

## APPLES

	Each	Dozen	100
1 year old, 2 to 3 feet.....	\$ .40	\$ 4.00	\$25.00
1 year old, 3 to 4 feet.....	.50	5.00	30.00
1 year old, 4 to 6 feet.....	.75	6.00	40.00

### SUMMER

Yellow Transparent  
Red Astrachan

Red June  
Liveland Raspberry

### FALL

Duchess of Oldenburg  
Fameuse, or Snow

Gravenstein  
Jeffries

### WINTER

Arkansas Black  
Delicious  
Grimes Golden  
Jonathan  
Rome Beauty  
Red Rome

Stayman Winesap  
Winter Banana  
Winesap  
White Winter Pearmain  
Wagener  
Yellow Newtown Pippin

### CRAB APPLES

Transcendent

Hyslop

## PEARS

	Each	Dozen	100
1 year old, 3 to 4 feet.....	\$ .75	\$ 7.50	\$45.00
1 year old, 4 to 6 feet.....	1.00	10.00	55.00

### SUMMER

Bartlett

Clapps Favorite

### AUTUMN

Clairgeau  
Flemish Beauty

Beurre d'Anjou  
Buerre Bosc

### WINTER

Winter Nelis

Winter Bartlett

## CHERRIES

	Each	Dozen	100
1 year old, 3 to 4 feet.....	\$ .85	\$ 8.50	\$65.00
1 year old, 4 to 6 feet.....	1.00	10.00	75.00

### SWEET VARIETIES

Royal Ann  
Bing  
Lambert

Black Republican  
Black Tartarian  
Governor Wood

The Royal Ann, Bing and Lambert require cross-pollination. For this purpose either the Black Tartarian, Black Republican or the Governor Wood, is satisfactory. Use them in the proportion of about 1 to 6 or 8.

### SOUR CHERRIES

May Duke  
Late Duke

Early Richmond  
Montmorency

500 and up at 5% discount from 100 rates  
1000 or more at 10% discount from 100 rates



## PEACHES

	Each	Dozen	100
2 to 3 feet .....	\$ 50	\$ 5.00	\$30.00
3 to 4 feet .....	.60	6.00	35.00
4 to 6 feet .....	.75	7.50	45.00

Hale's Early  
Salway  
Slappy  
Early Crawford  
Late Crawford  
Early Wheeler

Tuscan Cling  
Malta, or Muir  
Elberta  
Philips Cling  
J. H. Hale  
Gold Medal

## NECTARINES

Boston

New White

## APRICOTS

Prices same as Peaches.

Royal  
Moorpark

Blenheim  
Tilton

## PLUMS

Prices Same as Peaches

Peach Plum  
Bradshaw  
Coe's Golden Drop

Blue Damson  
Yellow Egg  
Green Gage

## JAPANESE SORTS

Burbank

Satsuma

## PRUNES

	Each	Dozen	100
3 to 4 feet .....	\$ 50	\$ 5.00	\$25.00
4 to 6 feet .....	.60	6.00	30.00

Hungarian  
Petite d'Agen  
Silver

Italian  
Sugar  
Tragedy

## QUINCES

	Each	Dozen
1 year old, 3 to 4 feet.....	\$1.00	\$10.00
Champion	Orange	

## MULBERRIES

	Each	Dozen
2 year old, 4 to 6 feet .....	\$1.00	\$10.00

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500 and up at 5% discount from 100 rates  
1000 or more at 10% discount from 100 rates

# NUT TREES

## ALMONDS

Prices .....	Each	Dozen
I X L	\$1.00	\$10.00
Drake	Nonpareil	
	Texas	

## WALNUTS

	Each	Dozen
Black Walnut, 2 year, 3-4 ft. ....	\$1.00	\$10.00
Black Walnut, 2 years, 4-6 ft. ....	\$1.25	\$12.50
Butternut, 3 years, 3-4 ft. ....	\$1.25	\$12.50
English Walnut, Franquette, 2 yrs, 3-4 ft.....	\$1.00	\$10.00
English Walnut, Franquette, 2 yrs, 4-6 ft.....	\$1.50	\$15.00

## CHESTNUTS

	Each	Dozen
American Sweet, 2 years, 3-4 ft.....	\$1.00	\$10.00
American Sweet, 2 years, 4-6 ft.....	\$1.25	\$12.50

## GRAPES

Write for prices on thousand lots. We are headquarters for Concord Grapes and can save you money on your vineyard. All stock guaranteed.

	Each	Dozen	100
2 year old .....	\$ .40	\$4.00	\$25.00

### AMERICAN VARIETIES

Agawam	Moore's Early
Concord	Niagara
Delaware	Worden

### EUROPEAN VARIETIES

Thompson Seedless	Muscat of Alexander
Flame Tokay	Black Hamburg
Malaga	Sultana

### GRAPES, SPECIAL SORTS

	Each	Dozen	100
Campbell's Early, extra good .....	\$ 50	\$5.00	\$35.00

Write for special information on growing grapes.

# BERRIES

## BLACKBERRIES

	Each	Dozen	100
Lawton .....	\$ .25	\$ 2.00	\$10.00
Mersereau .....	.25	2.00	10.00
Evergreen .....	.25	2.50	15.00
Mammoth .....	.25	2.50	15.00
Himalaya Giant .....	.25	2.50	15.00
Cory Thornless .....	.50	5.00	30.00

500 and up at 5% discount from 100 rates.

1000 or more at 10% discount from 100 rates.

## RASPBERRIES

	Dozen	100	
Kansas Blackcap .....	\$2.00	\$10.00	
Cuthbert, red .....	1.50	8.00	
St. Regis, red new everbearing .....	2.50	15.00	
	Each	Dozen	100
Loganberry .....	\$ .25	\$ 2.50	\$15.00

## DEWBERRY

	Each	Dozen	100
Lucretia .....	\$ .25	\$ 2.00	\$10.00

## GOOSEBERRIES

	Each	Dozen	100
Oregon Champion, best of all.....	\$ .25	\$ 2.50	\$15.00

## CURRANTS

	Each	Dozen
White Grape .....	\$ .25	\$ 2.50
Fays Prolific, red .....	.25	2.50
Perfection, red, new, extra good .....	.30	3.00

## STRAWBERRIES

	50	100	1000
Hood River .....		\$2.00	\$10.00
New Oregon Improved .....		3.00	15.00
Gold Dollar .....		3.00	15.00
Superb Everbearing .....	\$2.00	3.00	20.00
Progressive, everbearing .....	2.00	3.00	20.00

Strawberry plants shipped in Spring only. Fall planting is unsatisfactory. 25% cash with order, balance C. O. D. prepaid express or mail. We find it unsatisfactory to ship with tree orders by freight.

## MISCELLANEOUS

	Each	Dozen	100
Rhubarb .....	\$ .40	\$ 4.00	\$25.00
Horseradish .....	.35	3.50	20.00
Asparagus, per 1000, \$8.00 .....		1.00	2.50

## ORNAMENTAL DEPARTMENT

All our ornamental trees, flowering shrubs, etc., are once or more times transplanted and should not be compared with stock taken from the seedling row. We send out nothing but first class, well-rooted, straight trees.

	Each	Dozen	50	100
Catalpa Bungeii, grafted, 5-6 ft. heads .....	\$3.00	\$30.00		
Catalpa Speciosa, 5-6 ft. ....	.85	8.50		
Catalpa Speciosa, 6-7 ft. ....	1.00	10.00		
Crab Bechtel fl dbl pink, 4-5 ft. ....	1.25	12.50		
Elm, American, 6-7 ft. ....	1.00	10.00		
Elm, American, 7-8 ft. ....	1.25	12.50		
Elm, English, 5-6 ft. ....	1.00	10.00		
Elm, English, 6-7 ft. ....	1.25	12.50		
Horse Chestnut, 4-5 ft. ....	1.00	10.00		
Horse Chestnut, 9-10 ft. 2 in. ....	2.50	25.00		
Locust, black, 5-6 ft. ....	.50	5.00	20.00	35.00

500 and up at 5% discount from 100 rates.  
1000 or more at 10% discount from 100 rates.

	Each	Dozen	50	100
Locust, black, 7-8 ft. ....	\$ .65	6.50	25.00	45.00
Locust, black, 8-9 ft. ....	.85	8.50	30.00	55.00
Locust, black, 3 yr., 9-10 ft. ....	1.00	10.00	35.00	65.00
Mt. Ash, European, 6-7 ft. ....	1.00	10.00		
Mt. Ash, European, 8-9 ft. ....	1.25	12.50		
Maple, soft or silver, 5-6 ft. ....	.65	6.50	22.50	40.00
Maple Sycamore, 9-10 ft. ....	1.75	17.50	55.00	100.00
Maple Sycamore, 1½-1¾ inch calibre .....	2.00	20.00	65.00	125.00
Maple, Norway, 9-10 ft. ....	1.75	17.50	55.00	100.00
Maple, Norway, 1½-1¾ inch calibre .....	2.00	20.00	65.00	125.00
Maple, Norway, 1¾-2 inch calibre .....	2.50	25.00		
Poplar, Carolina, 5-6 ft. ....	.45	4.50	16.00	30.00
Poplar, Carolina 7-8 ft. ....	.60	6.00	22.50	40.00
Poplar, Carolina, 9-10 ft. ....	.85	8.50	27.50	50.00
Prunus Pissardi, purple foliage and fruit, 4-6 ft. ....	1.25	12.50		
Sycamore, Oriental Plane, 9-10 ft. ....	1.50	15.00		
Sycamore, Oriental Plane, 1½- 1¾ inch calibre .....	2.00	20.00	65.00	125.00
Sycamore, Oriental Plane, 1¾- 2-inch calibre .....	2.50	25.00	80.00	150.00
Thorn Pauls Scarlet flowering, grafted 2 year, 6-7 ft. ....	1.50	15.00		

## WEeping TREES

	Each	Dozen
Birch, Cutleaf weeping, 6-7 ft. ....	\$1.75	\$17.50
Birch, Cutleaf weeping, 7-8 ft. ....	2.00	20.00
Willow, Wisconsin, 5-6 ft. ....	1.00	10.00
Willow, Wisconsin, 7-8 ft. ....	1.25	12.50
Elm, Camperdown, 6-7 ft. ....	2.50	

## EVERGREENS

	Each	Dozen
Arborvitae, American, 18-24 inch .....	\$1.25	\$12.50
Arborvitae, pyramid, 18-24 inch .....	2.50	25.00
Spruce, Norway, 15-18 inch .....	1.75	17.50
Spruce, Koster, blue, grafted, 15-18 inch .....	3.00	

All evergreens are baled in burlap and handled in best possible manner to insure growth.

	Each	Dozen
Oregon Grape, 12-15 in. ....	\$ .75	\$7.50

## HEDGE PLANTS

	Doz.	100	500	1000
Arborvitae, American, 10-12 in....	\$3.50	\$20.00	85.00	150.00
Barberry, purple leaf, 2-3 ft. ....	3.00	17.50		
Barberry T Japanese, 18-24 in....	2.50	15.00	65.00	
Barberry, Japanese, 2-3 ft. ....	3.00	17.50	75.00	135.00
Privet, Eng., hardy, 15-18 in....	1.75	10.00	45.00	80.00

## HARDY FLOWERING SHRUBS

	Each	Dozen
Althea Admiral Dewey, dble white....2-3 ft.	\$ .75	\$ 7.50
Althea Elegantissima, wh. and pink..2-3 ft.	.75	7.50
Althea Rubra, red, double .....	.75	7.50
Barberry, purple leaf .....	.50	5.00
Barberry T Japanese .....	.50	5.00
Deutzia Crenata .....	.75	7.50
Deutzia Gracilis, dwarf .....	.75	7.50
Hydrangea Arborescens .....	.75	7.50
Hydrangea P. G. ....	.75	7.50
Honeysuckle, bush, red .....	.75	7.50
Lilac, purple, common .....	.75	7.50
Lilac, white, common .....	.75	7.50
Philadelphus, mock orange .....	.75	7.50
Quince, Jap flowering red .....	.75	7.50
Snowball .....	1.00	10.00
Snowball, H. B. Cranberry .....	1.00	10.00
Spirea, A waterer .....	.75	7.50
Spirea Opulifolia aurea .....	.75	7.50
Spirea, Prunifolia .....	.75	7.50
Spirea, Thunbergi .....	.75	7.50
Spirea, Van Houtte .....	.75	7.50
Weigela, Candida, white .....	.75	7.50
Weigela, Eva Rathke, red .....	1.00	10.00
Weigela, Rosea, pink .....	.75	7.50

## VINES AND CREEPERS

Ampelopsis, Virginia creeper, 2-yr. plants .....	\$ 75
Ampelopsis, Boston Ivy, 3-yr. plants .....	1.00
Ampelopsis, English Ivy, 3-yr. plants .....	1.00
Clematis Paniculata, 2-yr. plants .....	.75
Clematis, Henryii, large white, 2-yr. plants .....	1.00
Clematis, Jackmani, large purple, 2-yr. plants .....	1.00
Clematis, Mad E Andre, red, 2-yr. plants .....	1.00
Honeysuckle, Halleana, frag., 2-yr. plants .....	.65
Wistaria, purple, 2-yr. plants .....	.75
Wistaria, white, 2-yr. plants .....	.75
Trumpet, Flower, 2-yr. plants .....	.75

## PERENNIALS AND BULBS

We can supply any of the better known perennials, bulbs, flowering plants, etc. Send us your list. The Dutch bulbs, tulips, crocuses, daffodils, hyacinths and jonquils are for fall planting exclusively, while dahlias, gladiolas, canna and some others can be planted only in spring. Most of the hardy perennials such as Phlox, Dicentra, Peonies, Golden Glow, Iris, Alaska Daisies, etc., may be planted at either season.

# ROSES

We supply any of the following varieties, any assortment at a uniform price. These have all been tested and proven satisfactory in this locality.

## HYBRID PERPETUALS

	Each	Dozen
2-year old .....	\$ .75	\$7.50
Black Prince		
American Beauty (Madam Ferdinand Jamin), red.		
Black Prince, red.		
Champion of the World, red.		
Frau Karl Druschki (Snow Queen, white American Beauty)		
General Jacqueminot, red.		
J. B. Clark, red.		
Prince Camille de Rohan, red.		
Virginia R. Cox (Grus an Teplitz), red.		

## HYBRID TEAS

	Each	Dozen
2-year old .....	\$ .75	\$7.50
Double Pink Killarney.		
Double White Killarney.		
Duhess of Albany (Red La France).		
Etoile de France, red.		
General McArthur, red.		
Helen Gould, red.		
Jonkheer, J. L. Mock, pink.		
Kaiserin Augusta Victoria, white.		
La France, pink.		
Madam Caroline Testout, pink.		
Madam Melanie Soupert, salmon tint.		
Mrs. Aaron Ward, salmon tint.		
Perle von Godesburg (yellow Kaiserin A Victoria).		
Rhea Reid, red.		
White La France (Augustine Guinoisseau).		
Irish Fireflame, single, red and orange.		
Sunburst, salmon tint.		
Ophelia, salmon tint.		

## CLIMBERS

	Each	Dozen
2-year old .....	\$ .75	\$7.50
Apple Blossom (Empress of China), pink.		
Climbing Baby Rambler (Miss G. Messman), red.		
Crimson Rambler, red.		
Dorothy Perkins, pink.		
Tausendschoen, pink.		
Climbing American Beauty, red.		
Marshal Neil, yellow.		
Climbing Sunburst, salmon tint.		

KENNEWICK, WASH.

Mail order blank for your convenience. Be sure to fill in all spaces. If additional space is needed, write on back of order. Remittance may be made by check payable to the Gardner Nursery Company.

[illegible]

(Tear Out on Dotted Line.)

Total ..... \$.....

10% of above amount in cash with order..... \$.....

Balance ..... \$.....

Date ..... 19.....

On delivery of this bill of trees, etc., in the .....

WRITE IN SPRING OR FALL DELIVERY

.....of 19....., at the below named place, on  
the day to be set in your notification to me, it shall be con-  
sidered as delivered to me at which time and place I promise

to pay to you or your order the sum of .....Dollars  
for value received.

I positively agree that **I will not countermand** this order, and if by accident or otherwise, my order should not arrive on the day appointed, I will receive the same if delivered in good condition at the above named place, within a reasonable time.

**Purchaser's Signature** .....

**P. O. Address** .....

Shipping Point \_\_\_\_\_, State \_\_\_\_\_

All the stock is to be first-class and in good condition and anything omitted to be deducted from the bill. Any varieties that prove untrue to label to be replaced or the amount paid to be refunded. It is mutually agreed between the purchaser and myself that no further claim for damages be asked or required than above stated. While we exercise the greatest care in packing and handling stock, we give no guarantee either express or implied other than the above, and customer assumes full responsibility for the stock after arrival in good condition.

**GARDNER NURSERY CO.**

By \_\_\_\_\_





# *Gardner Nursery Company*

KENNEWICK, WASH.

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## INSTRUCTIONS FOR PLANTING

To those of our customers who are not thoroughly familiar with handling, planting and training young trees and grape vines, we offer the following suggestions:

**Receiving Stock.** On receipts of stock check it over carefully—we are all liable to mistakes. If order is shipped direct to you, examine for possible injury in transportation, from freezing or other cause, and have notation made on freight or express receipts. Protect stock with blankets on return trip; wet it down first, and again on arrival home.

**Heeling In.** Do not hold stock in cellar or barn longer than overnight, but trench in, in mellow soil convenient to planting ground. Cut lower strings on bundles; place in trench with roots well spread; cover roots with plenty of earth, well tramped in; water thoroughly.

**Laying Off a Field for Orchard.** There are nearly as many methods in vogue as there are planters, but for medium to large plantings where the field is not obstructed by older trees, the following method is a favorite with us. Decide on a base line, which should be a fence, road or other straight line forming one side of the orchard. Measure off the distance from this line it is desired to place the first row, and mark same by a stake at each end, one of which should represent the corner tree of the new orchard. With a carefully made measuring pole of the correct length, lay off this first row,

driving a stake for each tree. Cast off a right angle to start the first end row. Lay it and the other end row off in the same way, and then lay off the last row, the opposite side of the field from the base line. When the four corners are thus established, sight in all the intervening stakes in these four rows which thus bound the field, using care in moving a stake to keep it parallel to its former position, or measuring to correct small errors, if any. Ignore jutting triangular or other irregularities until main field is planted, when they can be easily filled in.

Stretch a new No. 14 wire without splices across the field, at one end, draw it reasonably tight along the row of stakes. Fasten each end firmly to a stake driven in the ground just back of corner stake. With a small soldering outfit drop a small drop of the solder on the wire at each stake position, measuring the wire with the measuring pole for accuracy. You are now ready to begin planting trees, and the hole for each tree may be dug and the tree planted while the wire remains in position.

When the row is completed, move the wire one row and repeat, using the second side stake at each end to establish the two end positions for the second row. Use care to always set the tree on the same side of wire. A little paint may be used in place of the solder if time is allowed for it to dry. Be sure that the roots of every tree are protected at all times by water or moist earth. Keep them heeled in until needed.

A small tract may best be staked off with a stake for each tree, measured off and sighted into line both ways, and a planting board used, which is a 3-foot piece of 1x4 lumber with a notch in each end and one at the middle of one side. The board is laid with the middle notch against the stake, staked at both ends and removed, and the hole dug, then the board replaced, when the two end stakes will regulate

the position of the board so that the tree will come in the same place that was occupied by the stake.

At time of planting, cut every root of the tree, to clean new tissue, to stimulate new growth, and prune the top back to 20 to 24 inches high, shortening in any limbs that are present. The tree should be planted slightly deeper than it stood in the nursery, and the dirt solidly packed about the roots. In using water in planting, the best practice is to apply it after the hole is about half filled with dirt and then permit it to soak away before completing the filling. At the first irrigation it is important to run the water clear to the tree trunks, so as to fill any small air spaces left inadvertently, and afterwards cultivate or hoe well.

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**To Lay Off a Vineyard.** After field is well plowed and otherwise prepared, mark off crosswise with an 8-foot marker; then stake the ends of the piece with stakes 9 feet apart, then plow out a dead furrow with a turning plow, for each row, driving to stakes.

**Planting Grapes.** Take a bundle of grapevines from heeling ground; cut all roots to 6 to 8 inches in length. Cut strings; place in a pail with a little water and packing material in it. Use a wire to insure a straight row. Set vines in furrow at check marks. Place crown of roots 6 to 7 inches below surface, and have lower end of new top growth just at the surface. This means you will have to slant most of the vines, which is the way they were grown in nursery. It is best to have the roots slant down, so fill in a little mound of soil where crown of roots is to stand. Pull in dirt from sides; tramp solidly; if water is on, let a stream of water follow down the furrow. When field is planted, harrow crosswise between grape rows to complete filling furrows.

Trim the top to one bud or to a whip in case of large vines. Drive a stake by every vine, to protect it and to tie up the young vine as it grows.

**Pruning the Vineyard the First Year.** We advise the four-arm Kniffen system, with a two-wire trellis, the trellis to be put in when grapes are one or two years from planting. This means you must keep the young vine confined to one trunk, tied to a stake. Keep suckers and low limbs pinched off, but at 2 feet from ground you may allow the two lower arms to start. As the young vine continues to grow, tie it higher on the stake. A little care in this respect will save a year in development of the vineyard.

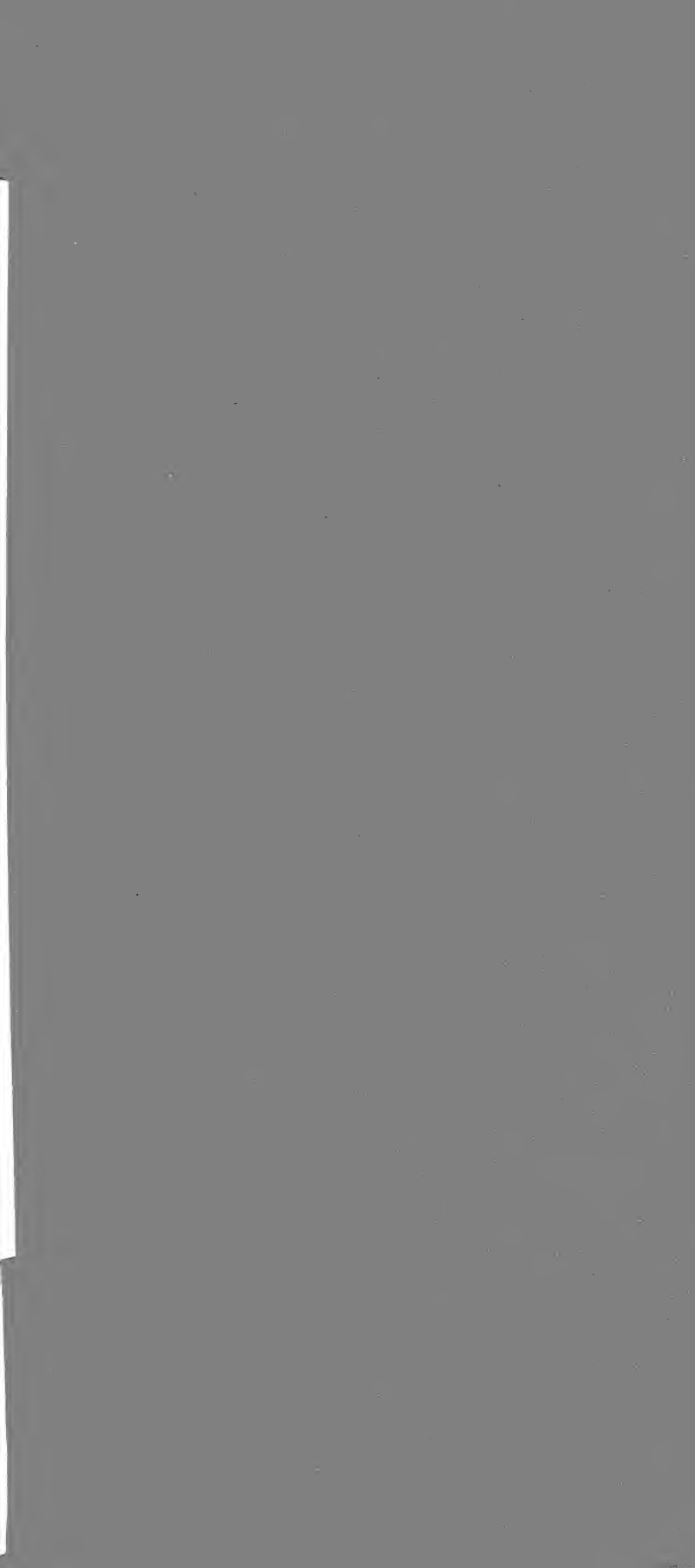
**Irrigation.** The first watering be sure water gets to the vine itself. Later waterings 1 to 2 feet from vine. Light, frequent irrigations are the best. Do not try for much growth late in season; it will prove too tender. Ripen up the wood early in fall by reduction in water supply. As a rule give no water in September.

J. R. GARDNER.

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